

What is claimed is:

1. A cable seal configured to seal a cable against fluid passage in an environment wherein a pressure differential exists between a first region of the environment and a
5 second region of the environment, including:

a bonding layer formed substantially directly on the cable; and

a bonding agent disposed on the bonding layer and configured to seal a portion of the cable against passage of fluids.

10 2. The cable seal of claim 1, wherein the bonding layer is a metallized layer.

3. The cable seal of claim 2, wherein the metallized layer includes at least one of chromium, nickel and gold.

15 4. The cable seal of claim 1, wherein the bonding agent includes epoxy.

5. The cable seal of claim 4, wherein the epoxy is bonded to the bonding layer.

6. The cable seal of claim 1, wherein the cable includes a plurality of optical fibers.

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7. The cable seal of claim 6, wherein the optical fibers are formed from silica.

8. The cable of claim 1, wherein the first region has a pressure lower than a pressure of the second region.

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9. A method for forming a seal on a cable having a core material, including the steps of:

removing an amount of an overlayer on the core material sufficient to expose a
5 surface to which a bonding layer may be applied;
applying a bonding layer to the exposed surface; and
applying a bonding agent to at least a portion of the bonding agent.

10. The method of claim 9, wherein the step of applying a bonding layer includes
10 applying a metallized layer to the exposed surface.

11. The method of claim 9, wherein the step of applying a bonding layer includes
applying a layer including at least one of chromium, nickel and gold.

15 12. The method of claim 9, wherein the step of applying a bonding agent includes the
step of applying epoxy to the bonding layer.

13. The method of claim 9, wherein:
the cable includes a plurality of optical fibers, each having a silica core; and
20 the step of applying a bonding layer includes the step of applying a metallized
layer including chromium, nickel and gold to each silica core in the cable.

14. The method of claim 13, wherein the step of applying a bonding agent includes
the steps of:
25 placing a region of the cable in a mold; and
applying epoxy to the region for sufficient time to bond the epoxy to at least a
portion of the metallized layer.

15. An optical fiber cable, including:

a plurality of optical fibers each having a silica core, the cable having a first region wherein at least some of the optical fibers including a first coating, having a
5 second region wherein at least some of the optical fibers have substantially no coating, and having a third region wherein at least some of the optical fibers have a second coating;

a bonding layer applied to at least a portion of the second region;

an epoxy seal bonded to the bonding layer of at least some of the optical fibers in
10 the second region and extending partly into the first region and partly into the second region.

16. The optical fiber cable of claim 15, further including:

a first conductive tube surrounding at least a portion of the first region;

15 a second conductive tube surrounding at least a portion of the third region; and

a conductive housing surrounding at least a portion of the second region,

including the epoxy seal;

wherein the first conductive tube, second conductive tube and conductive housing
form a continuous conductive path.

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17. The optical fiber cable of claim 16, further including an insulating sleeve over each of the first conductive tube, second conductive tube and conductive housing.

18. The optical fiber cable of claim 17, wherein the insulating sleeve includes

25 polyethylene.

19. A system for transmission of data between a first environment having a low relative pressure and a second environment having a high relative pressure, including:

a communications cable including a plurality of optical fibers each having a silica core, the cable having a first region wherein at least some of the optical fibers including a first coating, having a second region wherein at least some of the optical fibers have substantially no coating, and having a third region wherein at least some of the optical fibers have a second coating;

a bonding layer applied to at least a portion of the second region;

an epoxy seal bonded to the bonding layer of at least some of the optical fibers in the second region and extending partly into the first region and partly into the second region; and

at least one electronics module positioned within the first environment and coupled to a portion of the optical fibers in the first region.

20. The transmission system of claim 19, further including:

a first conductive tube surrounding at least a portion of the first region;

a second conductive tube surrounding at least a portion of the third region; and

a conductive housing surrounding at least a portion of the second region,

including the epoxy seal;

wherein the first conductive tube, second conductive tube and conductive housing form a continuous conductive path.

21. The transmission system of claim 19, further including a sleeve over each of the first conductive tube, second conductive tube and conductive housing.

22. The transmission system of claim 19, wherein the sleeve includes polyethylene.